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ABSIRACT

This study was to determine the effects of audio (AT) and video tape (VT) feedback on both verbal and psychomotor skills when all other aspects of the Stanford microteaching model were controlled. Two experiments were involved, both consisting of two microteaching cycles--one for a verbal skill and the other for psychomotor skill. Subjects were 80 beginning educational psychology students enrolled in a large midwestern university. Forty-eight students participated in the first experiment. Subjects were divided into groups of from three to five members according to their teaching fields. Each group was randomly assigned to one of two experimental treatments. Treatment one (AT) involved feedback in the form of student rating sheets, self-evaluation, and supervisor criticism based on the playback of audio tape. Treatment two (VT) involved the same feedback except the playback of audio-video tape was substituted for audio tape. Thirty-two students, participating in the second experiment, were randomly assigned to groups and to either AT or VT treatment. The first experiment emphasized evoking student-initiated questions and variation of the stimulus situation by the teacher. The second experiment emphasized silence and non-verbal cues and questioning techniques. Questionnaires, interviews with supervisors, and student evaluation of teachers provided data for analysis. Results indicated, in general no difference in the effectiveness of audio and audio-video tape as forms of feedback for both verbal and psychomotor skills. An 11-item bibliography and tables are included. (MJM)

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FEEDBACK CONDITIONS AND TYPE OF TEACHING SKILL IN MICROTEACHING

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SP 005 772

Paper presented at the annual convention of the American Educational Research Association, April 6, 1972.

Microteaching as developed at Stanford University has five essential properties--(1) it is real teaching; (2) it reduces the complexities of normal teaching in that class size, scope of the lesson, and length of the lesson are all reduced; (3) each lesson focuses on the mastery of specific tasks involved in teaching; (4) it allows for practice under more controlled conditions than would normally be found in a regular classroom; and (5) it provides a considerable amount of feedback for the microteacher (Allen and Ryan, 1969). This paper focuses on the fifth property mentioned above.

In the Stanford model, feedback is provided in the form of student rating sheets, a video tape of the lesson, and a critique session with a university supervisor. Allen and Ryan (1969), however, stress that alternatives to the original microteaching model should be examined before settling prematurely on a given procedure. One alternative to video tape feedback which should be examined is audio tape feedback.

A recent survey of NCATE-accredited institutions indicates that fifty-nine per cent of the institutions involved in microteaching used video tape lessons more than seventy-five percent of the time whereas only five percent of the institutions used audio tape more than seventy-five percent of the time. (Ward, 1970). Perhaps the microteaching supervisors agree with Meier (1968) that "when only audio recording is used, the conspicuous absence of many subtle nuances of body language in general, and of facial expressions in particular, makes it impossible to appreciate fully the communication between

individuals." (p. 148) However, the cost and problems involved in buying, maintaining, and moving even portable video tape equipment make it worthwhile to consider audio tape as an alternative.

Theoretically, audio tape may even have an advantage over video tape. Chan, Travers, and Van Mondfrans (1965) studied the effect of adding color embellishment to an audio-visual stimulus and found that color increased the amount of information learned through the visual channel, with a corresponding loss in information learned through the audio channel. Video tape, then, may focus attention on the information presented visually rather than on the audio track. For microteaching skills involving verbal behavior, such as "closure" or "questioning techniques," visual factors such as movement or gestures, are extraneous and may distract from the pertinent information presented through the audio track.

Unless it can be argued that less is learned when information is presented aurally rather than both aurally and visually, audio tape is probably better than video tape as a form of feedback for verbal skills. Van Mondfrans and Travers (1965) found no evidence for the superiority of information presented through the eye alone, ear alone, or eye and ear simultaneously and concluded that information transmission through a multiple system (such as video tape) was no more effective than information transmitted through a single system (such as audio tape). Travers (1970) also suggests that since students are used to viewing films passively, the information presented therein might never go beyond a superficial processing. With the widespread use of television for light entertainment, the same may be true of information presented in a televised

form. Although a microteacher might be interested in seeing himself, which could help, the cosmetic effect (Allen and Ryan, 1969) might direct his attention away from the truly crucial information.

Audio tape, on the other hand, usually requires active attention--especially when it does not involve music. Also, both the microteacher and supervisor are likely to focus on the same information, so the references made by the supervisor to an aspect of the teaching behavior can be readily assimilated by the microteacher.

Several studies support the theoretical position that audio tape and video tape are equal as a form of feedback. Smith (1970) found that in the remote supervision of student teachers, audio tape was equal to video tape in improving teaching performance and in fostering self-confidence. Similarly, Boone and Stech (1970) trained speech therapists equally well with video tape and audio tape feedback on their performance. In a microteaching situation, Shively, Van Mondfrans and Reed (1970) and Gall, Dell, Dunning, and Galassi (1971) found that no differences in the microteachers' overall performance depended on whether audio tape or video tape was used as feedback. The lessons taught in the Shively, Van Mondfrans, and Reed study, however, consisted primarily of lecturing, indicating that the skills learned were mostly verbal. And Gall, Dell, Dunning, and Galassi found that teachers receiving video tape feedback of their lessons used more demonstrations while those receiving audio tape feedback were significantly better in evaluation procedures--a verbal skill.

Although these studies show that verbal skills can be taught as effectively with audio tape feedback as with video tape, they do not tell the effect of the two types of feedback on psychomotor skills. The purpose of this study was to determine the effects of audio and video tape feedback on both verbal and psychomotor skills when all other aspects of the Stanford microteaching model are controlled. Two experiments were involved, both consisting of two microteaching cycles--one for a verbal skill and the other for a psychomotor skill. It was hypothesized that for both verbal and psychomotor skills, audio tape would be equal or superior to video tape as a form of feedback.

METHOD

Subjects

Subjects were 80 beginning educational psychology students enrolled in a large midwestern university. Forty-eight sudents, all in the same class (assigned by computer), participated in the first experiment as a class requirement. Subjects were divided into twelve groups of from three to five members according to their teaching fields; that is, science and math students were in one group, home economics students in another, etc. These groups were then randomly assigned to one of two experimental treatments. Treatment one (AT) involved feedback in the form of student rating sheets, self-evaluation, and supervisor criticism based on the playback of an audio tape. Treatment two (VT) involved the same feedback as treatment one except that the playback of an audio-video tape was substituted for the playback of an audio tape. Six groups were randomly assigned to each treatment and received the same treatment for both "teach" sessions.

Another class of 32 students participated in the second experiment as part of a class requirement. These subjects were randomly assigned to groups and to either the AT or VT treatment.

Procedures

The subjects each microtaught four times--teaching and reteaching two lessons. In the first experiment, the first group of lessons emphasized evoking student-initiated questions; the second group of lessons emphasized variation of the stimulus situation by the teacher. In the second experiment, the first lessons emphasized silence and non-verbal cues; the second, questioning techniques. Subjects taught and retaught each lesson to the members of their assigned experimental group. At the "teach" session, the teacher was taped either on an audio or audio-video tape, according to his experimental treatment. Students rated the teacher on the Stanford Teacher Competence Appraisal Guide (STCAG; Fortune, Cooper, and Allen 1966) and on a separate rating scale for the teacher behavior being emphasized in the lesson. The STCAG measured the students' perception of the teacher's aims, planning, and performance on a series of rating scales which could be marked from "weak" to "truly exceptional." The separate scales consisted of from five to seven questions (depending on the skill being emphasized) which also had a seven-point rating scale. At the "reteach" session, the students rated the teacher on the same scales, but the lesson was not taped.

Before any microteaching was done involving each behavior, a lecture on that behavior was presented. The lecturer also modeled the skill to be emphasized. All questionnaires were given out at the first lecture and were

returned to the experimenter after each "teach" and "reteach" session.

The subjects had individual consultations with one of two supervisors for the first experiment and a different supervisor in the second experiment. Consultations occurred during the week between "teach" and "reteach" sessions. During the consultation the supervisor critiqued the lesson on the basis of the student ratings and the tape of the microlesson. The supervisor's critiques consisted of general questions related to the specific behavior being emphasized. A conscious effort was made to keep the questions general and to produce reflection on the part of the subjects as to what they had done and how they could improve their use of the teaching skill being emphasized. For example, at a point where the experimenter could tell by the tape that a gesture might have been effective in the lesson concerning stimulus variation, he might ask the subject what he had done in the way of gesturing and what other things he might do to emphasize the point he was trying to teach. Or in the lesson on student-initiated questions, the supervisor might ask the subject how he could lead the students into asking questions concerning one aspect of the lesson rather than simply lecturing. Similar general questions were used for the lessons on silence and non-verbal cues and questioning techniques.

Analysis of the Data

An analysis of covariance was performed on the data. The ratings for each teacher on the "teach" session were the covariate and the ratings for the "reteach" session were the criterion variables. Several students rated each teacher's performance on each item. Since the number of students rating each

teacher was not the same across groups within treatments, it was decided to average the several ratings on each item by the students and use the average rating for each item as the data for analysis.

In all, each subject received nineteen average ratings when emphasizing student-initiated questions and twenty average ratings when emphasizing variation in the stimulus situation for each item he taught. In the second experiment, item thirteen of the STCAG was considered inappropriate and not analyzed, giving seventeen average ratings for the lesson on silence and non-verbal cues, and eighteen for the lesson on questioning techniques.

RESULTS

Student-initiated Questions

For all items on both the STCAG and the specific scale for student-initiated questions, the adjusted mean for the AT group was higher than that for the VT group (Table I). In the analysis, for each item of the specific scale, there were significant differences between the groups, on all six items with the AT group consistently superior to the VT group. On the STCAG only items eight and twelve, concerning the teacher's "staying with the class" and methods of evaluation failed to reach significance. Again, for the eleven significant items, the AT group was superior to the VT group (see Table II).

Stimulus Variation

For all items on both the STCAG and the specific scale for stimulus variation, (see Table III), the adjusted mean for the AT group was higher than the adjusted mean for the VT group. On the specific scale, only items one and two, concerning teacher movements and gesturing showed significant differences and on the STCAG only item six, concerning how quickly the students

came to attention, showed a significant difference. (see Table IV). In these cases, the AT group was again superior to the VT group.

Silence and Non-verbal Cues

The adjusted means for the STCAG and specific scale did not consistently favor one group over another. (see Table V). There were also no significant differences on any of the items in the two scales. (see Table VI).

Questioning Techniques

Again, the adjusted means on the STCAG and specific scale favored no particular group and there were no significant differences between the groups on any items of the rating scales. (see Tables VII and VIII).

DISCUSSION AND SUMMARY

In general, the hypothesis of no difference in the effectiveness of audio and audio-video tape as forms of feedback for both verbal and psychomotor skills is supported by the analysis. For the verbal skills--questioning techniques and student-initiated questions, audio and audio-video tape are equal for the former skill and audio tape is superior to video tape for the latter skill. For the psychomotor skills--silence and non-verbal cues and variation of the stimulus situation--audio and video tape feedback result in equal growth in both analyses.

The difference between the two analyses for verbal skills, may be due to the sequencing of the skills. For example, in the first experiment, the verbal skill was taught before the non-verbal skill. If we assume that the same

amount of pertinent information is present on both tapes, the cosmetic effect may have distracted the attention of the subjects with video tape feedback, while those using audio tape were able to concentrate on the pertinent information. By the second lesson, some of the cosmetic effect may have worn off, thus allowing the subjects with video feedback to assimilate the same amount of pertinent information as those using audio tape.

In the second experiment, the first skill taught--silence and non-verbal cues--did not produce significant differences between the AT and VT group, as would have been expected if the cosmetic effect alone were affecting the amount of information received from the feedback. One way to account for this lack of difference is by assuming an interaction between the amount of pertinent information provided by the tapes and the cosmetic effect. If we assume that more pertinent information concerning psychomotor skills is presented by a video tape than by an audio tape, but at the same time, information from a video tape is lost due to a cosmetic effect, then it is possible that the amount of information lost and gained would tend to balance. Thus, the effects of the audio and the audio-video tape treatments would be expected to be the same in the second experiment, but different in the first experiment since the video tape provides no extra pertinent information on verbal behavior but still causes the subject to suffer the cosmetic effect.

By the time the second skill is taught, the cosmetic effect would wear off enough for information processing due to video tape to become more effective. But at the same time, subjects receiving audio feedback are becoming more adept at processing the information it presents. Thus, there are no differences between groups on the second teaching skill--whether it is a psychomotor or verbal one.

Implications and Suggestions for Further Research

The implications of these results for limited microteaching are that audio tape could easily and effectively be substituted for video tape as a form of feedback in microteaching. For more extended microteaching, the two types of feedback may be alternated, depending upon whether a verbal or psychomotor skill is being learned. However, these data suggest that audio tape, with general supervisory comments, is as effective as video tape for both verbal and psychomotor skills. To demonstrate the opposite, more extended research needs to be done to determine whether the types of feedback continue to be equal or become differentially effective depending upon the type of skill learned and the exposure of the microteacher to both types of feedback.

The attitudes of microteachers and supervisors to the use of audio rather than video tape feedback needs to be examined. Some preliminary work in this area has been done by Smith (1969), Shively, Van Mondfrans, and Reed (1970), and Boone and Stech(1970), but the studies measure attitudes toward different aspects of the class and microteaching. Conflicting conclusions then result. Comparisons of attitudes need to be carefully thought out as to what attitudes are relevant. The experiments also need to be carried out with the subjects receiving

one form of feedback not realizing that there could be alternate feedback-otherwise, attitudes are not true for a situation in which only one form of feedback is possible.

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Table I

ADJUSTED MEANS FOR STUDENT-INITIATED QUESTIONS

Question	VT mean	AT mean	VT adj. mean	AT adj. mean
(specific scale)				
1.	5.2779	5.8814	5.3324	5.8192
2.	3.8200	5.6071	3.9298	5.4816
3.	5.2012	6.1624	5.2785	6.0740
4.	5.0521	5.8333	5.1181	5.7579
5.	4.9829	5.8890	5.0215	5.8449
6.	5.2242	5.9981	5.3275	5.8800
(STCAG)				
1.	5.1671	5.8262	5.2451	5.7371
	5.[illegible]34	5.8176	5.2130	5.7446
3.	5.2400	5.8933	5.3280	5.7928
4.	5.1871	5.8890	5.2409	5.8275
5.	5.2087	5.8295	5.2322	5.8028
6.	5.1704	6.0557	5.2048	6.0164
7.	5.1946	6.0162	5.2610	5.9403
8.	5.1183	5.7619	5.2262	5.6386
9.	5.3333	5.9162	5.4023	5.8374
10.	5.1704	5.7148	5.2092	5.6704
11.	5.5104	6.0914	5.5407	6.0979
12.	4.6837	5.4562	4.6982	5.4397
13.	3.7604	5.3938	3.8372	5.3060

Table II

ANALYSIS OF COVARIANCE FOR STUDENT-INITIATED QUESTIONS

Question	Source	df	MS	F
(specific scale)				
1.	treatment	1	2.5850	6.851* AT>VT
	error	42	.3773	
2.	treatment	1	25.3286	10.427** AT>VT
	error	42	2.4291	
3.	treatment	1	6.5780	15.674** AT>VT
	error	42	.4197	
4.	treatment	1	4.4001	10.581** AT>VT
	error	42	.4159	
5.	treatment	1	7.5157	9.076** AT>VT
	error	42	.8281	
6.	treatment	1	3.1693	7.016* AT>VT
	error	42	.4517	
(STCAG)				
1.	treatment	1	2.5242	7.929** AT>VT
	error	42	.3183	
2.	treatment	1	3.0693	9.587** AT>VT
	error	42	.3201	
3.	treatment	1	2.2961	6.819* AT>VT
	error	42	.3367	
4.	treatment	1	3.7936	10.931** AT>VT
	error	42	.3471	
5.	treatment	1	3.6405	13.473** AT>VT
	error	42	.2702	
6.	treatment	1	7.3454	18.622** AT>VT
	error	42	.3944	

* Significant at .05 level.
** Significant at .01 level.

Table II (continued)

ANALYSIS OF COVARIANCE FOR STUDENT-INITIATED QUESTIONS

Question	Source	df	MS	F
(STCAG)				
7.	treatment	1	5.0498	13.487** AT>VT
	error	42	.3744	
8.	treatment	1	1.7550	3.931
	error	42	.4465	
9.	treatment	1	2.0467	5.210* AT>VT
	error	42	.3929	
10.	treatment	1	2.3574	5.123* AT>VT
	error	42	.4602	
11.	treatment	1	3.9404	12.975** AT>VT
	error	42	.3037	
12.	treatment	1	6.1502	3.194
	error	42	1.9255	
13.	treatment	1	23.9794	8.793** AT>VT
	error	42	2.7212	

* Significant at .05 level.
** Significant at .01 level.

Table III

ADJUSTED MEANS FOR STIMULUS VARIATION

Question	VT mean	AT mean	VT adj. mean	AT adj. mean
(specific scale)				
1.	4.8267	6.0383	5.0877	5.7773
2.	5.0700	6.0625	5.2405	5.8920
3.	5.2258	5.8646	5.3956	5.6949
4.	5.4479	5.8092	5.6099	5.6472
5.	5.2079	5.8579	5.3943	5.6715
6.	5.3446	6.1250	5.6017	5.8679
7.	5.2337	6.0421	5.3777	5.8982
(STCAG)				
1.	5.2258	5.9442	5.5591	5.6109
2.	5.2900	5.8925	5.5307	5.6518
3.	5.2883	5.9662	5.4806	5.7740
4.	5.2921	5.9408	5.5171	5.7158
5.	5.4062	6.0033	5.6344	5.7752
6.	5.2779	6.0458	5.3861	5.9376
7.	5.2779	5.9379	5.4197	5.7962
8.	5.1421	5.8546	5.3965	5.6002
9.	5.5350	6.0000	5.5924	5.9426
10.	5.3367	5.8296	5.4607	5.6992
11.	5.6633	6.0387	5.6938	6.0083
12.	5.0521	5.5771	5.2608	5.3683
13.	3.7296	5.6012	4.2995	5.0313

* Significant at .05 level.
** Significant at .01 level.

Table IV

ANALYSIS OF COVARIANCE FOR STIMULUS VARIATION

Question	Source	df	MS	F	
(specific scale)					
1.	treatment	1	4.2750	6.741*	AT>VT
	error	45	.6342		
2.	treatment	1	4.2641	8.711**	AT>VT
	error	45	.4895		
3.	treatment	1	.8556	1.662	
	error	45	.5149		
4.	treatment	1	.0140	.024	
	error	45	.6454		
5.	treatment	1	.7625	1.182	
	error	45	.5908		
6.	treatment	1	.6416	1.039	
	error	45	.6172		
7.	treatment	1	2.3440	3.871	
	error	45	.6055		
(STCAG)					
1.	treatment	1	.0238	.065	
	error	45	.3633		
2.	treatment	1	.1435	.286	
	error	45	.5017		
3.	treatment	1	.8274	2.001	
	error	45	.4135		
4.	treatment	1	.3894	.906	
	error	45	.4298		
5.	treatment	1	.2045	.527	
	error	45	.3881		

*Significant at .05 level.
**Significant at .01 level.

Table IV (continued)

ANALYSIS OF COVARIANCE FOR STIMULUS VARIATION

Question	Source	df	MS	F	
(STCAG)					
6.	treatment	1	3.1319	5.429*	AT>VT
	error	45	.5769		
7.	treatment	1	1.5675	3.757	
	error	45	.4172		
8.	treatment	1	.3999	1.055	
	error	45	.3789		
9.	treatment	1	1.3970	2.184	
	error	45	.6396		
10.	treatment	1	.5839	.900	
	error	45	.6485		
11.	treatment	1	1.1741	2.083	
	error	45	.5635		
12.	treatment	1	.1245	.113	
	error	45	1.1042		
13.	treatment	1	5.378	2.459	
	error	45	2.1856		

*Significant at .05 level.
**Significant at .01 level.

Table V

ADJUSTED MEANS FOR SILENCE AND NON-VERBAL CUES

Question	VT mean	AT mean	VT adj. mean	AT adj. mean
(specific scale)				
1.	4.8035	4.8873	4.8429	4.8427
2.	4.8776	4.9047	4.8883	4.8926
3.	4.7306	4.5220	4.7975	4.4461
4.	4.8194	4.9153	4.9314	4.7884
5.	5.0382	4.9613	5.1856	4.7944
(STCAG)				
1.	5.0714	4.8336	5.1538	4.7512
2.	5.0236	4.7029	5.0853	4.6412
3.	5.2550	5.0593	5.4076	4.9067
4.	5.1607	4.9400	5.2428	4.8579
5.	5.0600	4.5943	5.1208	4.5335
6.	5.0050	5.0243	5.0502	4.9791
7.	5.0836	4.8214	5.1084	4.7966
8.	4.9343	5.0593	4.9898	5.0038
9.	4.9879	4.9286	5.0291	4.8874
10.	4.4279	4.6700	4.3934	4.7045
11.	5.0779	4.9286	5.0783	4.9281
12.	4.5236	4.4336	4.5056	4.4515

Table VI

ANALYSIS OF COVARIANCE FOR SILENCE AND NON-VERBAL CUES

Question	Source	DF	MS	F
(specific scale)				
1.	treatment	1	.0000	.0000
	error	29	.8513	
2.	treatment	1	.0001	.0000
	error	29	.9080	
3.	treatment	1	.9270	.7210
	error	29	1.2856	
4.	treatment	1	.1504	.2560
	error	29	.5879	
5.	treatment	1	1.1390	2.189
	error	29	.5202	
(STCAG)				
1.	treatment	1	1.1058	
	error	26	.58702	1.88374
2.	treatment	1	1.3495	
	error	26	5.9639	2.2627
3.	treatment	1	1.5591	
	error	26	.3736	4.1737
4.	treatment	1	1.0029	
	error	26	.6118	1.6393
5.	treatment	1	2.3177	
	error	26	1.4523	1.5959
6.	treatment	1	.0332	
	error	26	.8717	.0380
7.	treatment	1	.6788	
	error	26	.5872	1.1559

Table VI (continued)

ANALYSIS OF COVARIANCE FOR SILENCE AND NON-VERBAL CUES

Question	Source	DF	MS	F
(STCAG)				
8.	treatment	1	.0013	
	error	26	.4944	.0025
9.	treatment	1	.1390	
	error	26	.5693	.24415
10.	treatment	1	.6742	
	error	26	1.5613	.4318
11.	treatment	1	.1577	
	error	26	.6959	.2266
12.	treatment	1	.0205	
	error	26	1.7097	.0120

Table VII

ADJUSTED MEANS FOR QUESTIONING TECHNIQUES

Question	VT mean	AT mean	VT adj. mean	AT adj. mean
(specific scale)				
1.	4.8035	5.0631	4.8649	4.9828
2.	4.7541	4.9492	4.7493	4.9555
3.	4.8335	4.7093	4.8834	4.6528
4.	4.8041	4.6553	4.6369	4.8449
5.	4.9118	4.9560	4.9478	4.9151
6.	5.0776	4.7227	5.0510	4.7529
(STCAG)				
1.	4.8624	4.9433	4.8681	4.9369
2.	4.9018	4.8567	4.8411	4.9254
3.	4.9800	4.9667	4.9197	5.0350
4.	4.9859	4.8000	4.9668	4.8216
5.	4.9406	4.8560	5.0045	4.7835
6.	4.8671	4.7327	4.7969	4.8122
7.	4.9700	4.7893	4.9814	4.7764
8.	5.0441	4.8447	5.0650	4.8210
9.	4.9318	5.0327	4.8972	5.0719
10.	4.4418	4.7227	4.4031	4.7665
11.	5.2353	5.0773	5.2106	5.1053
12.	4.8635	4.6440	4.7439	4.7796

Table VIII

ANALYSIS OF COVARIANCE FOR QUESTIONING TECHNIQUES

Question	Source	df	MS	F
(specific scale)				
1.	treatment	1	.1013	.100
	error	27	1.0138	
2.	treatment	1	.3133	.237
	error	27	1.3245	
3.	treatment	1	.4228	.706
	error	29	.5964	
4.	treatment	1	.5430	.610
	error	29	.3311	
5.	treatment	1	.0085	.009
	error	29	.9557	
6.	treatment	1	.7074	1.122
	error	29	.6303	
(STCAG)				
1.	treatment	1	.0377	.092
	error	29	.4085	
2.	treatment	1	.0564	.094
	error	29	.5973	
3.	treatment	1	.1053	.188
	error	29	.5610	
4.	treatment	1	.1678	.323
	error	29	.5200	
5.	treatment	1	.3875	.936
	error	29	.4141	
6.	treatment	1	.0019	.004
	error	29	.4533	

Table VIII (continued)

ANALYSIS OF COVARIANCE FOR QUESTIONING TECHNIQUES

Question	Source	df	MS	F
(STCAG)				
7.	treatment	1	.3347	.548
	error	29	.6112	
8.	treatment	1	.4745	.695
	error	29	.6825	
9.	treatment	1	.2429	.480
	error	29	.5064	
10.	treatment	1	1.0484	.585
	error	29	1.7911	
11.	treatment	1	.0883	.194
	error	291	.4543	
12.	treatment	1	.0100	.007
	error	29	1.3373	